

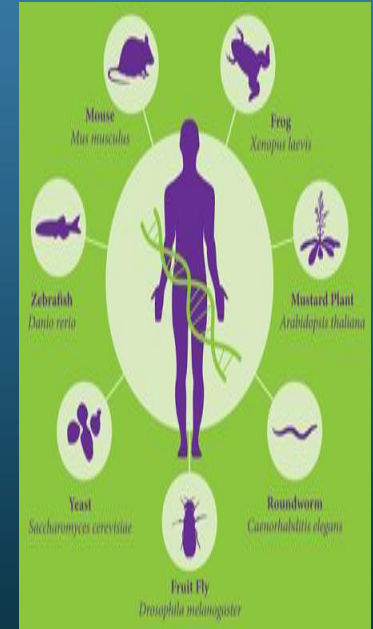


Model organisms

By Mardea Bokatwa 2661 ,Mohamed taktash2476

Definition Model Organism

- Model organisms are non human species that are used in laboratory to help scientists understand biological process
- They are usually organisms that are easy to maintain and breed in a laboratory setting.



A close-up photograph of a microscope's objective lens and eyepiece, showing the 'OLYMPUS' brand name on the lens housing. The background is blurred, showing other parts of the microscope and a white surface.

History

- The idea of model organism first took root in the middle of the 19th century with the work of Charles Darwin and Gregor Mendel and their respective work on natural selection and genetics of heredity

- Why are the model organism useful for studying disease ?

- The natural course of disease in human may take long time in contrast model organism can quickly devolpe disease in much short time when scientists

- Discover a link between particular gene and human disease they typically find out

what that gen does in model organism

- This information can provide important idea about what causes a disease it also can help





- Research develop potential diagnosis ,tests , treatment

Why are model organisms useful in genetics research?

- Many model organisms can breed in large numbers.
- Some have a very short generation time, which is the time between being born and being able to reproduce
- Some model organisms have similar gene to humans.
- ❖ Model organisms can be used to create highly detailed genetic maps



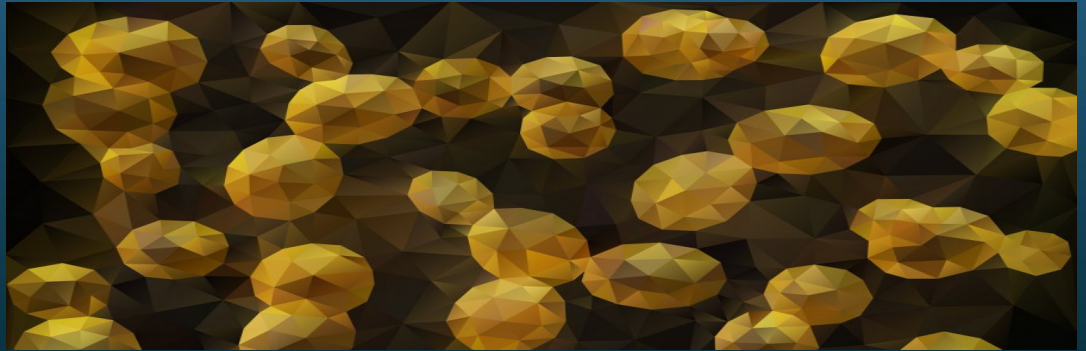
Examples of model organisms used to study genetics

- Yeasts
- Neonate worm
- Western clawed frog
- Mouse
- Zebra fish



Yeasts

- The yeasts cells have a nucleus that contains DNA packaged in chromosomes
- It shares many basic biological properties with our cells



Neonate worm

- Use in search since 1960, it much simpler than human it does not have heart or bone but it have many genes similar to human



Mouse

- The mouse has many similarities to humans in terms of anatomy, physiology and genetics
- It is cheap and easy to look after and easy to manipulate



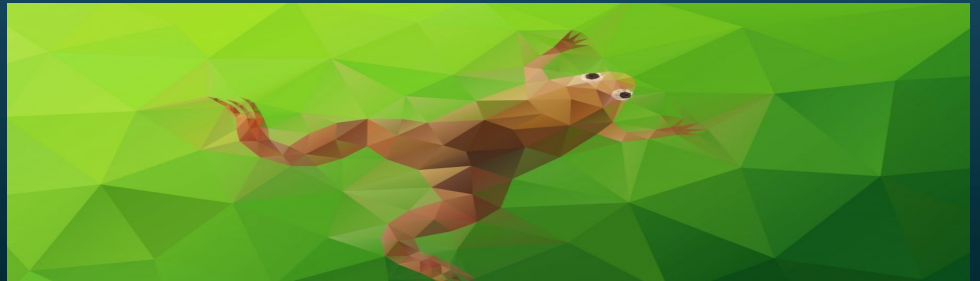


- Mice are for better than flies and Worms for studying complex biological systems found in humans such as, immune, endocrine, nervous and skeletal



Western clawed frog

- It gives us knowledge about the mechanism of early development in vertebrates, and it is easily bred and maintained in a laboratory.
- Genetically, the frog is very similar to humans and it is a good model for human disease.



Zebra fish

- Is small and cheaper Zebra fish have similar genetic structure to human they share 70% of genes with as
- 84% of genes known to be associated with human disease have Zebra fish counts part





- It is important model to understanding the mechanism of development and disease Such cancer and muscular dusatrophy.





Summary

- Model organism first took root in the middle of the 19th century and a model organism are the non human species that are used in a laboratory to help they must have same character like they easy to breed in laboratory setting and breed in large number have short generation time



Reference

- <https://www.yourgenome.org/facts/what-are-model-organisms>
- <https://www.yourgenome.org/facts/why-use-the-frog-in-research>
- <https://www.yourgenome.org/facts/why-use-the-frog-in-research>
- <https://www.yourgenome.org/facts/why-use-the-worm-in-research>
- <https://www.yourgenome.org/facts/why-use-the-mouse-in-research>
- <https://www.yourgenome.org/facts/why-use-yeast-in-research>



THANK YOU